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ABSTRACT

This paper attempts to clarify what the intermediate technology of learner verification and revision (LVR) is and how it relates to other corresponding labels and concepts. Three coordinate concepts, evaluation, revision, and a decision to implement are described as being closely intertwined, and when taken together, provide a model for what is labeled the LVR process. Figures are then used to present the major steps involved in the LVR process. Some of the myths and anecdotes associated with LVR are alluded to in discussions of past research efforts and directions for research in the future. It was concluded that LVR is a significant intermediate technology for special education and that improved instructional materials for handicapped learners should be the result. A brief overview of the legislative implications of LVR for instructional material developers in special education is given. References and figures are appended. (Author/JPF)

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SHAPING SPECIAL EDUCATION THROUGH THE INTERMEDIATE TECHNOLOGY OF LEARNER VERIFICATION AND REVISION (LVR)

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SHAPING SPECIAL EDUCATION THROUGH THE INTERMEDIATE TECHNOLOGY OF LEARNER VERIFICATION AND REVISION (LVR)

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Leaner Verification and Revision (LVR) is a fairly recent term coined by Kenneth Komoski (1971), executive director of Educational Products Information Exchange (EPIE), an educational consumer protection organization. The concept, however, is not entirely new. Variously called student tryout and revision or developmental testing (Markle, 1967; Nathenson & Henderson, 1977) it has been with us since the early 1960's. Many have taken LVR to be synonymous with what Scriven (1967) has labelled formative evaluation. This paper attempts to clarify what the intermediate technology of LVR is and how it relates to the labels mentioned above. Further, this paper presents a brief description of the major steps in the LVR process. It alludes to some of the myths and anecdotes associated with LVR. It discusses various research efforts and future research directions in LVR. Finally, it focuses upon legislative implications of LVR for materials developers in special education.

WHAT IS LVR?

The three co-ordinate concepts, evaluation, revision and decision to implement are all closely related. Each represents a cluster of activities which can occur independently, but which

ideally, are intimately intertwined.

Evaluation: Simply stated, evaluation is that range of activities undertaken to assess the worth of something. Figure 1 suggests how evaluation may be subdivided as a concept in terms of its purposes: formative -- to help improve a product or programme; summative -- to prove or validate the product or programme. The figure also shows the two primary sources of evaluation data: experts -- either content, target population, context, or technical; learners -- those for whom the product or programme has been developed. Some convenient terms for combining purpose with source are shown in the same figure.

Insert Figure 1 about here

Revision: The activities engaged in to make changes to a product or programme, presumably to improve it, are generally called revision.

Decision to implement: Once a product or programme has been designed or produced, a go/no go decision must be made. This can be done in the absence of any evaluation data. All to frequently this is the case.

When the three related concepts are taken together, the intersection of learner based formative evaluation and revision provides us with what has been labelled Learner Verification and Revision. (See Figure 2.)

Insert Figures 2 and 3 about here

HOW DOES LVR WORK?

Figure 3 graphically illustrates the principle steps in LVR. We begin with a prototype instructional material. Entering the learner verification phase, the prototype is tried out with one or more learners representing the target population. The data from the tryout is then analyzed. If unsatisfactory, a diagnosis of the weaknesses is undertaken as a first step toward revision. Prescriptions for change are stated, followed by actual revision to the prototype. The material is then retested with a learner or learners until satisfactory results are obtained. A more elaborate summative evaluation may then ensue. LVR requires that periodic verification and, if necessary, revision occur throughout the life of the instructional material.

WHY BOTHER WITH LVR?

There is a myth among instructional materials developers in special education that we always test before we place materials in the hands of our learners. How closely does this match actual practice? No one has yet verified the state of affairs within our special area of concern -- and this needs doing. In terms of general educational/instructional materials, an attempt has been made to discover how much evaluation actually goes on. Komoski (1971, 1975) states that less than 1% of all educational products in the U.S. go through any form of developmental testing whatsoever. Programmed instructional materials which by definition should be based on a committment to tryout and revsion with learners fares

only slightly better -- 8%. We would be shocked if an automobile manufacturer released a car on the market without any form of testing before final production. What would we say about a drug manufacturer who did this? Yet this is common practice in education. Let us only be thankful that no educational material has yet been directly linked to the death of a learner -- at least not physically.

HOW DO WE DO LVR?

A number of authors have suggested procedures for carrying out LVR (e.g. Markle, 1967, Nathenson & Henderson, 1977a, 1977b, Stolovitch, 1975; Thiagarajan, 1971). Gropper (1975) has some excellent and thought-provoking suggestions. Bordeleau (1976) has specifically zeroed in on LVR for visuals used with handicapped learners. The guidelines all these authors offer are based on experience and empirical testing. Unfortunately, they remain at the anecdotal and prescriptive levels (which does not imply lack of validity). Only minimal research has been done on the variables related to LVR. Abedor (1972) has made an important contribution by field testing a model for formative evaluation of self-instructional multi-media learning systems. Robeck (1965) and more recently Kandaswamy, Stolovitch and Thiagarajan (1976) have established the positive effects of LVR. Kandaswamy applied the LVR process to a programmed instructional material using two different methods: tutorial (or clinical) and group-based. He found that both approaches produced significantly superior results in the revisions. Both approaches also produced

equally effective revisions. But he has raised far more questions than he has answered.

A host of LVR variables require carefully controlled study. These center around: the initial quality and type of prototype materials, the type and numbers of tryout subjects, the types and numbers of evaluators needed, the characteristics and experience of revisors as well as their training, the means for translating evaluation data to revision prescriptions, the cumulative effects of expert appraisal and learner verification, the types of data required, the types of instruments that should be used, the appropriate analytic tools, and the best means for reporting LVR data to name but a few.

Thus the question "How do we do LVR" remains unanswered for the moment except to recommend: by guidelines from "those in the know", by experience, and by feel. Hopefully the near future will provide guidelines based on research findings.

WHY BOTHER WITH LVR?

Despite insufficient research findings, one conclusion has already come through clearly: LVR does significantly improve attainment of objectives of an instructional material (Kandaswamy, 1976; Nathenson and Henderson, 1977b; Robeck, 1965). Based on the activism of EPIE, two states: California and Florida have already passed LVR legisilation. It is perhaps appropriate, since we are in Miami, to quote from Florida Senate Bill 492, section 283.25:

> Publishers shall provide written proof of the use of the learner verification and revision process during prepublication development and postpublication revision of the materials in question. For purpose of this section learner verification is defined as the empirical process of data gathering and analysis by which a publisher of a curriculum material has improved the instructional effectiveness of that product before it reaches the market and then continues to gather data from learners in order to improve the quality and reliability of that material during its full market life.

Seventeen other states have pending legislation. NIE, NSF, USOE and several state and local education agencies are sponsoring LVR programmes. Those who are producing instructional materials for the handicapped are certainly familiar with the concept of accountability. LVR is one of its very legitimate offspring.

CONCLUSION

LVR is a significant intermediate technology for special education. Our research group at the Université de Montréal is attempting to provide a research base for developers of instructional materials to utilize. An intermediate technology of LVR is emerging. Payoff in the form of improved materials for our handicapped learners will be the result.

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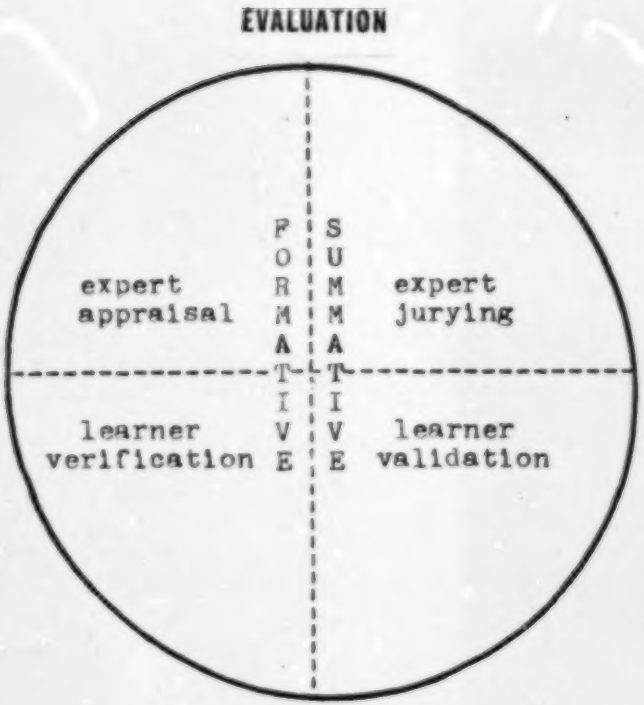

Figure 1: Evaluation

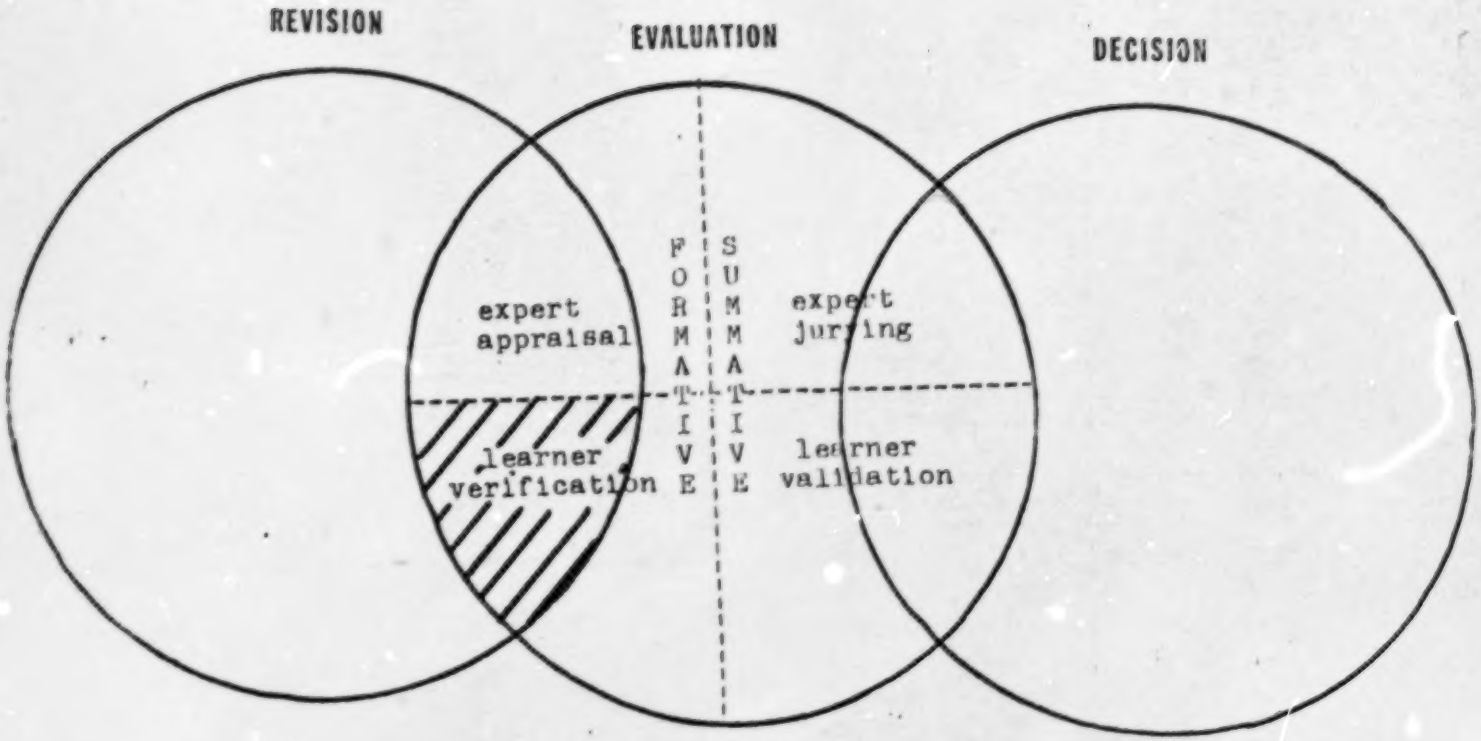

Figure 2: Learner Verification and Revision

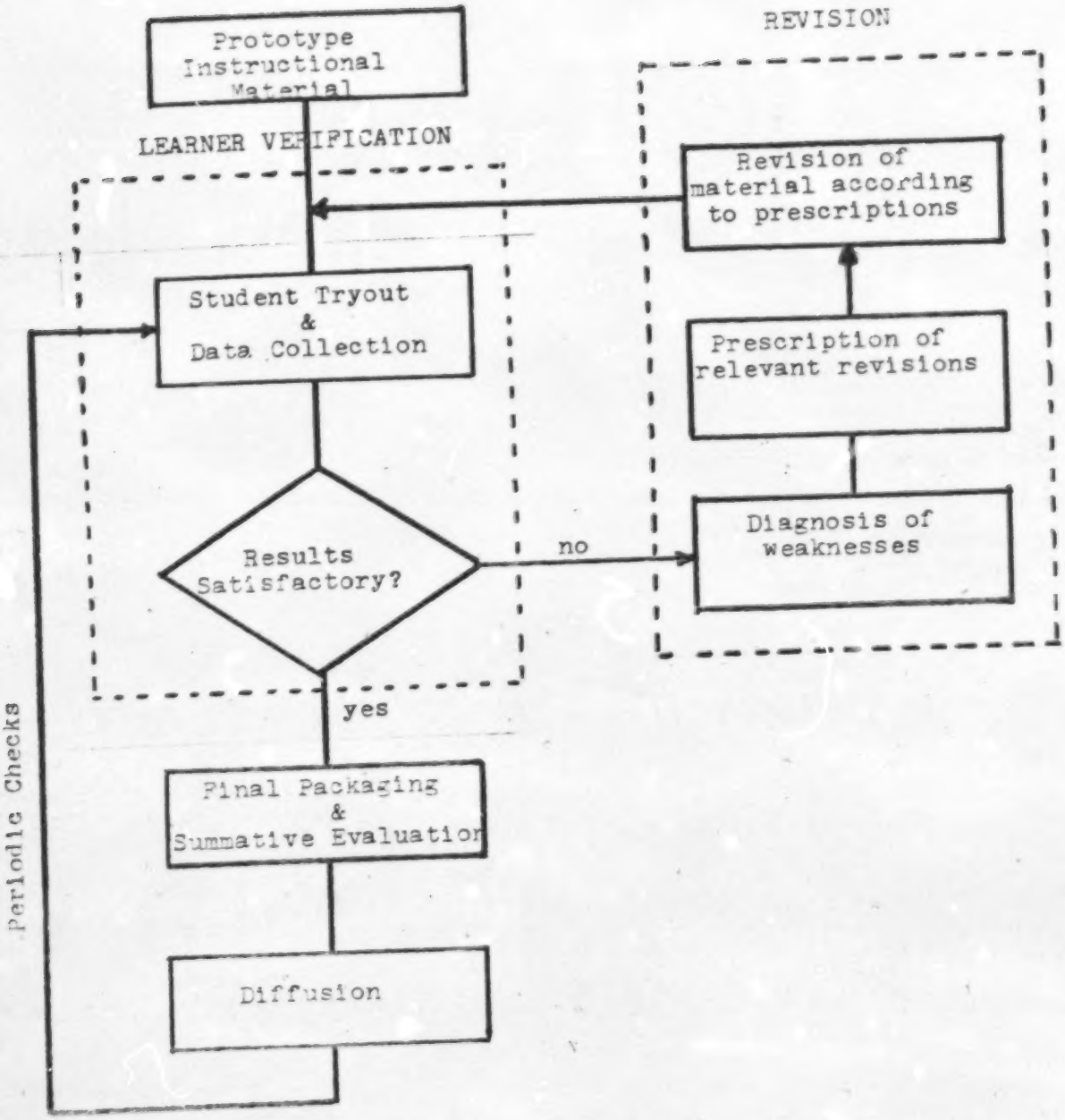

Figure 3: Steps in the LVR process